

2. $P^* = 5, Q^* = 20,000 \Rightarrow TR = 100,000$

$TC = 120,000$

$FC = 30,000 (= 300,000 \times 0.1)$

$TVC = TC - FC = 90,000$

$\Pi = TR - TC$

$= 100,000 - 120,000 = -20,000$. Suffering loss

However, since operating profit is positive,

$TR - TVC = 100,000 - 90,000 = 10,000 > 0$.

the firm should operate in the short run, but exit in the long run.

5. A : $\Pi = 1500 - 1500 = 0$ (break-even)

Operating cost = $\frac{TR}{TC} - \frac{TVC}{FC} = 1500 - 1000 = 500 > 0$

SR: operate
LR: operate

B. $\Pi = 2000 - 1500 = 500 > 0$

SR: operate
LR: operate

C. $\Pi = 2000 - 2500 = -500 < 0$

Op. cost = $2000 - 2300 = -300 < 0$

SR: shut down
LR: exit

D. $\Pi = 5000 - 6000 = -1000 < 0$

Op. cost = $5000 - 4500 = 500 > 0$

SR: operate
LR: exit

E. $\Pi = 5000 - 7000 = -2000 < 0$

Op. cost = $5000 - 5500 = -500 < 0$

SR: shut down
LR: exit

F. $\Pi = 5000 - 4000 = 1000 > 0$

Op. cost = $5000 - 3500 = 1500 > 0$

SR: ~~shut down~~ operate
LR: operate

9. $P = 7$

Q	TFC	TVC	MC
0	12	0	-
1	12	5	5
2	12	9	4
3	12	14	5
4	12	20	6
5	12	28	8
6	12	38	10

Q^* is determined where $P^* = MC$.
 In this case, there is no $MC = 7$.
 Therefore, we choose $Q = 4$ as the optimal level since if the firm produces $Q = 5$, $MC > MR (= P)$ and the firm starts losing money.

$Q^* = 4, TR = 4 * 7 = 28,$
 $TC = 32, \pi = 28 - 32 = -4 < 0.$
 $Op. cost = 28 - 20 = 8 > 0$

SR: operate
 LR: ~~exit~~

14. a

Q	TFC	TVC	TC	AVC	ATC	MC
0	300	0	300	-	-	-
1	300	100	400	100	400	100
2	300	150	450	75	225	50
3	300	210	510	70	170	60
4	300	290	590	72.5	147.5	80
5	300	400	700	80	140	110
6	300	540	840	90	140	140
7	300	720	1020	102.86	145.71	180
8	300	950	1250	118.75	156.25	230
9	300	1240	1540	137.78	171.11	290
10	300	1600	1900	160.00	190.00	360

Price	Q.S.	Profit	TR	TC
50	0 (shut down)	-300	0	300
70	0 (shut down) or 3	-300	0 or 210	300 or 510
100	4	-190	400	590
130	5	-50	650	700
170	6	180	1020	840
220	7	520	1540	1020
280	8	990	2240	1250
350	9	1610	3150	1540

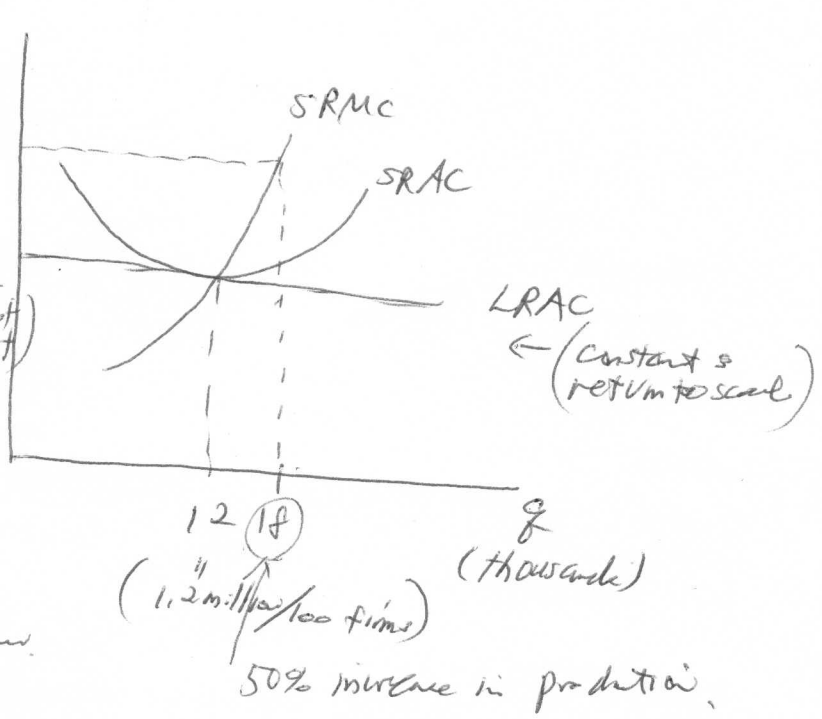
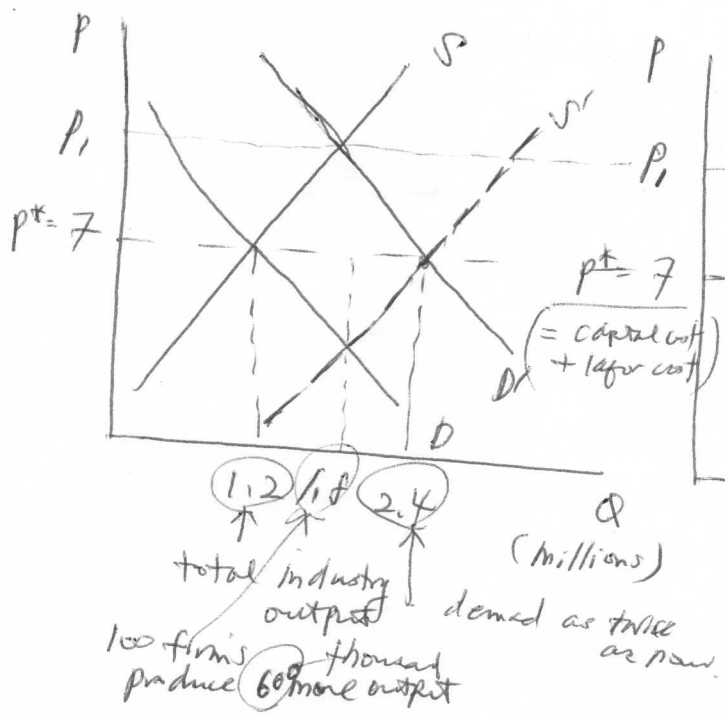
14. (c)

Price	Q.S.	Q.D.
50	0	1000
70	between 0 & 300	900
100	400	800
130	500	700
170	600	600
220	700	500
280	800	400
350	900	300

(d) From the market supply and demand schedule in (c), the equilibrium market price for the good is \$170 and the equilibrium market quantity is 600. Each firm will produce a quantity of 6 and earn a profit equal to 180.

e) The equilibrium in this market is not a long-run equilibrium because firms are making profits, entry will occur. Entry will increase quantity supplied, and this will decrease equilibrium price until each firm is making zero profit.

15. a.



1.2 / 1.8 / 2.4
 total industry output demanded as twice as now
 100 firms produce 600 more output

1.2 (1,200) / 1.8 (1,800) / 100 firms
 50% increase in production

(c) In the short run, demand shifts from D to D' and price rises to P_1 . Firms are making profits, and they raise output to 1.8.
 In the long run, 100 new firms enter the industry. Supply shifts from S to S' , and price falls back to \$7.